CLAIMS

1. A package for containing electronic components, the package comprising:

a first circuitized card;

a second circuitized card;

an interposer interposed between the first and second circuitized cards, the interposer having an opening, the opening of the interposer and the first and second circuitized card forming a cavity for containing at least one electronic component.

2. The package of claim 1 wherein the interposer, first circuitized card and second circuitized card act as a Faraday shield for electronic components placed inside the cavity.

3. The package of claim 2 wherein the interposer has at least one connection to at least one ground.

4. The package of claim 3 wherein the at least one connection is a multiplicity of connections to the at least one ground, the distance between a connection and its closest neighboring connection being approximately equal.

5. The package of claim 1 wherein the opening is square and is in the approximate center of the interposer.

6. The package of claim 1 wherein the interposer is electrically and physically connected to the first and second circuitized cards.

7. The package of claim 1 wherein the first circuitized card has a top surface and there is at least one component mounted to the top surface.

8. The package of claim 1 wherein the first circuitized card has a bottom surface and there is at least one component mounted to the bottom surface.

9. The package of claim 1 wherein the second circuitized card has a top surface and there is at least one component mounted to the top surface.

10. The package of claim 1 wherein the second circuitized card has a bottom surface and there is at least one component mounted to the bottom surface.

11. The package of claim 1 wherein the interposer, first circuitized card, and second circuitized card are circuitized multi-layer organic laminate cards.

12. The package of claim 1 wherein the second circuitized card has a bottom surface and the bottom surface has a ball grid array allowing connection to a system board.

13. The package of claim 6 wherein the first circuitized card and interposer are connected through surface mount or through-hole technologies and wherein

the interposer and the second circuitized card are connected through surface mount or through-hole technologies.

14. The package of claim 13 wherein the interposer and first circuitized card are connected through a ball grid array and the interposer and the second circuitized card are connected through a ball grid array.

15. The package of claim 1 wherein the first circuitized card has a top surface and a bottom surface, the second circuitized card has a top surface and a bottom surface, and there is at least one component on the top surface of the first circuitized card, there is at least one component the bottom surface of the first circuitized card, and there is at least one component the top surface of the second circuitized card.

16. The package of claim 1 wherein at least one component is mounted to the first circuitized card and wherein the at least one component is attached to a heat sink or pick-up plate.

17. The package of claim 1 wherein the cavity contains at least one component.

18. The package of claim 17 wherein the at least one component inside the cavity is attached to a bottom surface of the first circuitized card or a top surface of the second circuitized card and wherein the at least one component is attached to the bottom surface of the first circuitized card or the top surface of the second circuitized card through surface mount attachment, direct chip attachment or through-hole attachment.

19. The package of claim 1 wherein the first circuitized card has a top surface and there is at least one component attached to the top surface of the first circuitized card through surface mount attachment, direct chip attachment or through-hole attachment.

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20. ~~A package for containing electronic components, the package~~ comprising:

a first circuitized card having a top surface and a bottom surface;

a second circuitized card having a top surface and a bottom surface;

an interposer having an opening, a top surface, and a bottom surface, the interposer being electrically connected to the first circuitized card and the second circuitized card through a first and second set of connections, the first set of connections being interposed between the bottom surface of the first circuitized card and the top surface of the interposer, the second set of connections being interposed between the bottom surface of the interposer and the top surface of the second circuitized card, wherein the bottom surface of the second circuitized card has a third set of connections for attaching the second circuitized card to a system card, and wherein the opening in the interposer, the bottom surface of the first circuitized card and the top surface of the second circuitized card forming a cavity for containing at least one electronic component.

21. The package of claim 20 wherein the cavity contains at least one electronic component.

22. The package of claim 21 wherein the at least one component inside the cavity is attached to a bottom surface of the first circuitized card or a top surface of the second circuitized card and wherein the at least one component is attached to the bottom surface of the first circuitized card or the top surface of the second circuitized card through surface mount attachment, direct chip attachment or through-hole attachment.

23. The package of claim 21 wherein the first circuitized card has a top surface and there is at least one component attached to the top surface of the first circuitized card through surface mount attachment, direct chip attachment or through-hole attachment.

24. The package of claim 20 wherein each set of connections of the first, second, and third sets of connections is a plurality of surface mount connections, or a plurality of through-hole connections.

25. The package of claim 24 wherein each set of connections of the first, second, and third sets of connections is a ball grid array.

26. The package of claim 20 wherein the interposer acts as a Faraday shield for electronic components placed inside the cavity.

27. The package of claim 26 wherein the interposer has at least one connection to at least one ground.

28. The package of claim 27 wherein the at least one connection is a multiplicity of connections to the at least one ground, the distance between a connection and its closest neighboring connection being approximately equal.

29. The package of claim 20 wherein the opening is square or rectangular and is in the approximate center of the interposer.

30. The package of claim 20 wherein there is at least one electronic component mounted to the top surface of the first circuitized card.

31. The package of claim 20 wherein there is at least one electronic component mounted to the bottom surface of the first circuitized card.

32. The package of claim 20 wherein there is at least one electronic component mounted to the top surface of the second circuitized card.

33. The package of claim 20 wherein the interposer has at least one electronic component on its surface.

34. The package of claim 20 wherein the interposer, first circuitized card, and second circuitized card are circuitized multi-layer organic laminate cards.

35. The package of claim 20 further comprising a third circuitized card and a second interposer having a second opening, wherein the third circuitized card, second circuitized card, and the second opening in the second interposer define a second cavity for containing at least one electronic component, wherein the third circuitized card is electrically connected to the second interposer through a fourth set of connections, and wherein the second interposer is electrically connected to the second circuitized card through a fourth set of connections.

36. ~~A method for creating a multi-level electronic package, the method~~ comprising the steps of:

a) connecting a first circuitized card to an interposer, the interposer having an opening; and

b) connecting a second circuitized card to the interposer, wherein the first circuitized card, the second circuitized card, and the opening in the interposer form a cavity for containing electronic components.

37. The method of claim 36 further comprising the step of placing at least one electronic component in the cavity.

38. The method of claim 36 further comprising the step of grounding at least one connection to the interposer so that the interposer and the at least one connection acts as a Faraday shield.

39. The method of claim 38 wherein the at least one connection is a plurality of connections, and the method further comprises the step of grounding the plurality of connections such that each ground is approximately equal in distance from its nearest neighboring ground.

40. The method of claim 36 wherein the step of connecting the first circuitized card to the interposer further comprises the step of connecting the interposer and the first circuitized card through a ball grid array.

41. The method of claim 36 wherein the step of connecting the second circuitized card to the interposer further comprises the step of connecting the interposer and the second circuitized card through a ball grid array.

42. The method of claim 36 wherein the step of connecting the first circuitized card to the interposer further comprises the step of connecting the interposer and the first circuitized card through either a plurality of surface mount connections or a plurality of through-hole connections.

43. The method of claim 36 wherein the step of connecting the second circuitized card to the interposer further comprises the step of connecting the interposer and the second circuitized card through either a plurality of surface mount connections or a plurality of through-hole connections.

44. The method of claim 36 wherein the first circuitized card further comprises a top surface and wherein the method further comprises the step of mounting at least one electronic component on the top surface of the first circuitized card.

45. The method of claim 36 wherein the first circuitized card further comprises a bottom surface and wherein the method further comprises the step of mounting at least one electronic component on the bottom surface of the first circuitized card.

46. The method of claim 36 wherein the second circuitized card further comprises a top surface and wherein the method further comprises the step of mounting

at least one electronic component on the top surface of the second circuitized card.

47. The method of claim 36 wherein the second circuitized card further comprises a bottom surface and wherein the method further comprises the step of mounting at least one electronic component on the bottom surface of the second circuitized card.

48. The method of claim 36 wherein the second circuitized card further comprises a bottom surface and the method further comprises the step of attaching a ball grid array to the bottom surface of the second circuitized card for connection to a system board.

49. The method of claim 48 further comprising the step of connecting the second circuitized card to a system board.

50. The method of claim 44 further comprising the step of attaching a pick-up plate or heat sink to the at least one electronic component on the top surface of the first circuitized card.

51. The method of claim 36 further comprising the following steps:

c) connecting a second interposer having a second opening to the second circuitized card; and

d) connecting a third circuitized card to the second interposer, wherein the third circuitized card, second circuitized card, and the second opening in the second interposer form a second cavity for containing at least one component.

52. The method of claim 51 further comprising the step of placing at least one component in the second cavity.

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